

WHAT IS CLAIMED

1. An apparatus for generating heat by exothermic nuclear reactions in which reactions deuterium participates, and in which during use of the apparatus deuterium flows out of an electrically polarized solid-electrolyte layer into a metal reactor plate, and in which apparatus deuterium flows out of the metal plate into a second polarized solid-electrolyte layer, with the reactor plate containing at least one diffusion-impeding non-metallic layer.
2. The apparatus of Claim 1 in which at least one diffusion-impeding layer within the reactor plate is made of CaO.
3. The apparatus of Claim 1 in which the metal reactor plate is made of metal selected from a group comprising Pd and Pd alloy.
4. The apparatus of Claim 1 in which the solid-electrolyte layers are made of poly ethylene oxide (PEO), containing deuterided phosphoric acid.
5. An apparatus for generating heat by exothermic nuclear reactions in which reactions deuterium participates, and in which during use of the apparatus deuterium gas is adsorbed onto the inflow surface of a metal reactor plate and is absorbed into the reactor plate, from the reactor plate deuterium flows out of an outflow surface of the metal reactor plate into an electrically polarized solid-electrolyte layer, in which the reactor plate contains at least one diffusion-impeding non-metallic layer.
6. The apparatus of Claim 5 in which at least one diffusion-impeding layer within the reactor plate is made of CaO.
7. The apparatus of Claim 5 in which the metal reactor plate is made of metal selected from a group comprising Pd and Pd alloy.
8. The apparatus of Claim 5 in which the solid-electrolyte layer is made of poly ethylene oxide (PEO), containing deuterided phosphoric acid.

9. An apparatus for generating heat by exothermic nuclear reactions in which reactions deuterium participates, and in which during use of the apparatus deuterium flows out of an electrically polarized solid-electrolyte layer into a metal reactor plate, and in which apparatus deuterium flows out of the metal plate into a second polarized solid-electrolyte layer, with the reactor plate containing a dispersion of diffusion-impeding non-metallic inclusions.

10. The apparatus of Claim 9 in which non-metallic inclusions within the reactor plate are made of CaO.

11. The apparatus of Claim 9 in which the metal reactor plate is made of metal selected from a group comprising Pd and Pd alloy..

12. The apparatus of Claim 9 in which the solid-electrolyte layers are made of poly ethylene oxide (PEO), containing deuterided phosphoric acid.

13. An apparatus for generating heat by exothermic nuclear reactions in which reactions deuterium participates, and in which during use of the apparatus deuterium gas is adsorbed onto the inflow surface of a metal reactor plate and is absorbed into the reactor plate, and from the reactor plate deuterium flows out of the outflow surface of the metal reactor plate into an electrically polarized solid-electrolyte layer, with the reactor plate containing a dispersion of diffusion-impeding non-metallic inclusions.

14. The apparatus of Claim 13 in which in which the non-metallic inclusions within the reactor plate are made of CaO.

15. The apparatus of Claim 13 in which the metal reactor plate is made of metal selected from a group icomprising Pd and Pd alloy..

16. The apparatus of Claim 13 in which the solid-electrolyte layer is made of poly ethylene oxide (PEO), containing deuterided phosphoric acid.